

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark
Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 12 June 1998 (12.06.98)	
International application No. PCT/US97/19406	Applicant's or agent's file reference 3519-4-PCT
International filing date (day/month/year) 28 October 1997 (28.10.97)	Priority date (day/month/year) 28 October 1996 (28.10.96)
Applicant TRACY, Michael, J. et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

21 May 1998 (21.05.98)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

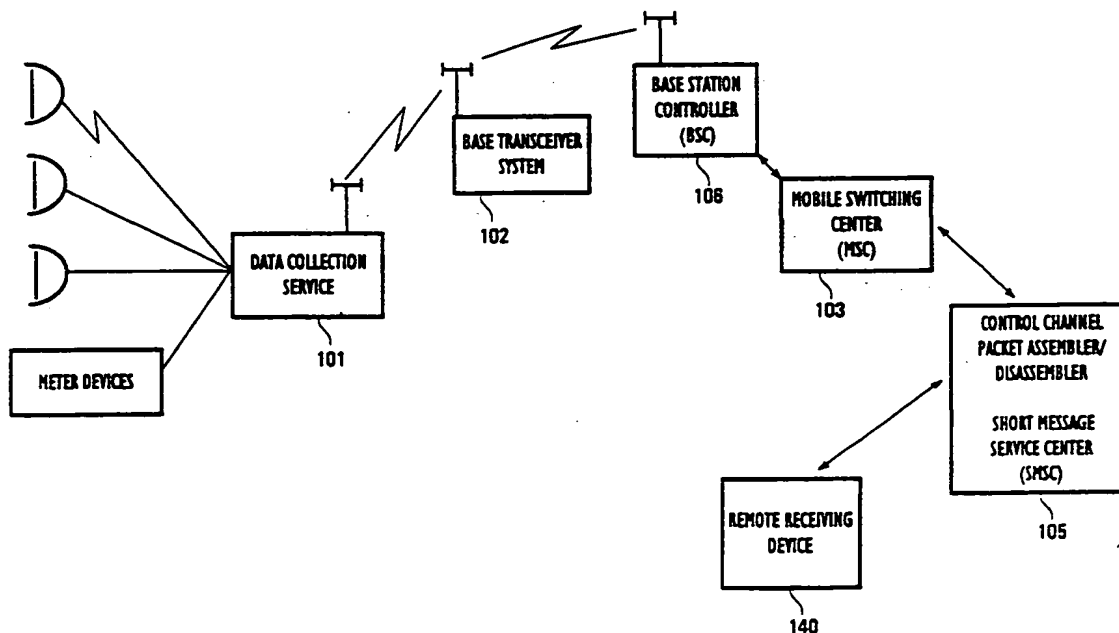
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer D. Moh Telephone No.: (41-22) 338.83.38
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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H04M 11/04, G08C 15/06, 19/20, 19/22, H04M 11/00, H04Q 7/00, 9/00, G06F 17/50, G06G 7/62		A1	(11) International Publication Number: WO 98/19447
			(43) International Publication Date: 7 May 1998 (07.05.98)
(21) International Application Number: PCT/US97/19406		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 28 October 1997 (28.10.97)		<p>Published</p> <p><i>With international search report.</i></p> <p><i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>	
(30) Priority Data:			
08/740,361 28 October 1996 (28.10.96) US			
08/920,085 26 August 1997 (26.08.97) US			
(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application			
US 08/920,085 (CIP)			
Filed on 26 August 1997 (26.08.97)			
(71) Applicant (for all designated States except US): TRACY CORPORATION II [US/US]; P.O. Box 1225, Scottsbluff, NE 69363-1225 (US).			
(72) Inventors; and			
(75) Inventors/Applicants (for US only): TRACY, Michael, J. [US/US]; 731 East 38th Street, Scottsbluff, NE 69363 (US). HINZE, Robert, L. [US/US]; 1685 Bonanza Street, Gering, NE 69341 (US).			
(74) Agents: TOMPKINS, Michael, L. et al.; Sheridan Ross P.C., Suite 3500, 1700 Lincoln Street, Denver, CO 80203-4501 (US).			

(54) Title: TELECOMMUNICATIONS INTERFACE AND ASSOCIATED METHOD FOR COLLECTING AND TRANSMITTING DATA



(57) Abstract

A system for remotely monitoring and transmitting data as shown in figure 1. The system includes devices for sensing and collecting data (120) and for converting the data (154) to digital data and a processing unit (154) for processing the data. The data can be digitally transmitted over a GSM or TDMA technology digital network (320) via a control channel (105).

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EE	Estonia						

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US97/19406

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : Please See Extra Sheet.

US CL : Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 340/870.02, 870.03, 310.01; 379/106.03, 106.07, 108.01; 455/422, 426, 552, 554, 410; 375/200; 364/481

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, DIALOG

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 4,940,976 A (GASTOUNIOTIS et al) 10 July 1990, figs. 8 and 9 and col. 3.	1 and 7 ----- 2-6, 8-9
X ----- Y	US 4,803,632 A (FREW et al) 07 February 1989, abstract and fig. 3 and col. 8-9.	1 and 7 ----- 2-6, 8-9
Y	US 4,538,029 A (GAZZOLI et al) 27 August 1985, entire document.	40-48
X ----- Y	US 5,214,587 A (GREEN) 25 May 1993, abstract and sol. 3-4.	10,13-15, 17-18 ----- 11-12,16



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*G* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

11 FEBRUARY 1998

Date of mailing of the international search report

31 MAR 1998

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

ALBERT WONG

Telephone No. (703) 305-8884

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/19406

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 5,546,444 A (ROACH, Jr. et al) 13 August 1996, figs. 3-6 and cols. 25-26.	19-30 ----- 2-6, 8, 9, 11, 12, 16
X	US 5,481,546 A (DINKINS) 02 January 1996, abstract and cols. 9-10.	31-39
X	US 5,553,094 A (JOHNSON et al) 03 September 1996, entire document.	19-39
A	US 5,526,403 A (TAM) 11 June 1996, entire document.	40-48
Y	US 5,544,227 A (BLUST et al) 06 August 1996, entire document.	40-48
Y	US 5,548,631 A (KREBS et al) 20 August 1996, entire document.	40-48

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/19406

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/19406

A. CLASSIFICATION OF SUBJECT MATTER: IPC (6):

H04M 11/04, G08C 15/06, 19/20, 19/22; H04M 11/00; H04Q 7/00, 9/00; G06F 17/50; G06G 7/62

A. CLASSIFICATION OF SUBJECT MATTER: US CL :

340/870.02, 870.03, 310.01; 379/106.03, 106.07, 108.01; 455/422, 426, 552, 554, 410; 375/200; 364/481

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-9 are, drawn to an apparatus and method for sensing data, for converting the data, and for wirelessly transmitting the data in response to a remote command.

Group II, claim(s) 10-18 are, drawn to an apparatus and method for monitoring utility usage data with a means for determining utility usage by monitoring the reflected radiation from a rotating means.

Group III, claim(s) 19-30 are, drawn to a transmission protocol for a data gathering system.

Group IV, claims 31-39 are, drawn to a method of collecting data and transmitting a short message in a control channel.

Group V, claims 40-48 are, drawn to a device and a method for coupling telecommunication equipment with a digital personal communication system.

The inventions listed as Groups I-V do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I relates to a method and device for sensing data and wirelessly transmitting the data in response to a command request from a remote device. Such features are not recited in the other claims. Group II relates to a device and method of monitoring utility usage by means of a rotating means for reflecting radiation. Such features are not recited in the other claims. Group III relates to a method of transmitting a data sequence using a particular protocol. Group IV relates to a method of collecting data, composing a message and transmission of the message using a personal communications system protocol. Group V relates to a method and device for coupling telecommunications equipment to a personal communications system. None of the other claims recite features of such a device.

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27C/

PATENT COOPERATION TREATY

PCT

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

19

09/297317

Applicant's or agent's file reference 3519-4-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US97/19406	International filing date (day/month/year) 28 OCTOBER 1997	Priority date (day/month/year) 28 OCTOBER 1996
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant TRACY CORPORATION II		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 2 sheets.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the report
 - II ☐ Priority
 - III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
 - IV ☒ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

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Date of submission of the demand 21 MAY 1998	Date of completion of this report 28 MAY 1999
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer MICHAEL HORABICK Telephone No. (703) 305-8884 Joni Hill

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/19406

I. Basis of the report

1. This report has been drawn on the basis of *(Substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments).*

☒ the international application as originally filed.

☒ the description, pages 1-38, as originally filed.

pages NONE, filed with the demand.

pages NONE, filed with the letter of _____.

pages _____, filed with the letter of _____.

☒ the claims, Nos. 1-48, as originally filed.

Nos. NONE, as amended under Article 19.

Nos. NONE, filed with the demand.

Nos. NONE, filed with the letter of _____.

Nos. _____, filed with the letter of _____.

☒ the drawings, sheets/fig 1-11, as originally filed.

sheets/fig NONE, filed with the demand.

sheets/fig NONE, filed with the letter of _____.

sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

☒ the description, pages NONE.

☒ the claims, Nos. NONE.

☒ the drawings, sheets/fig NONE.

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the ~~Supplemental Box~~ Additional observations below (Rule 70.2(c)).

4. Additional observations, if necessary:

NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/19406

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☒ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

Please See Supplemental Sheet.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos. .

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/19406

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. STATEMENT**

Novelty (N)	Claims <u>2-6,8-9,11-12,16,19-48</u>	YES
	Claims <u>1,7,10,13-15,17-18</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-48</u>	NO
Industrial Applicability (IA)	Claims <u>1-48</u>	YES
	Claims <u>none</u>	NO

2. CITATIONS AND EXPLANATIONS

Claim 1 and 7 lack novelty under PCT Article 33(2) as being anticipated by Gastouniotis.

Regarding claims 1 and 7, Gastouniotis teaches the claimed technical features of a sensing means, a converting means, a processing means, and a wireless transmitting means in col. 3 and figures 8 and 9.

Claims 2-3 and 8-9 lack an inventive step under PCT Article 33(3) as being obvious over Gastouniotis in view of Roach.

Regarding claims 2-3 and 8-9, the abstract and cols. 18-21 teaches the use of a control channel of a cell phone system for the transmission of data collected by a meter. The various wireless systems are inherent in the teachings. It would have been obvious to combine the teachings since they solve the same technical problem of wireless utility meter data gathering and transmission.

Claims 4-6 lack an inventive step under PCT Article 33(3) as being obvious over Gastouniotis. The claims recite means for wirelessly transmitting data and the processing of the data before transmissions. It would have been obvious to use processors to prepare the data and various wireless transmission means to transmit the data from one point to another.

Claims 10,13-15, and 17-18 lack novelty under PCT Article 33(2) as being anticipated by Green.

Regarding claims 10, 13-15, and 17-18, these claims recite an apparatus for connection to a conventional meter where a means transmits radiation that is interrupted by a rotating disk. The interruptions are sensed and thus the energy consumption is recorded. The abstract and cols. 3-4 teach all of these features.

Claims 11-12, and 16 lack an inventive step under PCT Article 33(3) as being obvious over Green. These claims recite the additional features of wirelessly transmitting the data over an (Continued on Supplemental Sheet.)

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

CLASSIFICATION:

The International Patent Classification (IPC) and/or the National classification are as listed below:

IPC(6): H04M 11/04, G08C 15/06, 19/20, 19/22; H04M 11/00; H04Q 7/00, 9/00; G06F 17/50; G06G 7/62 and US Cl.: 340/870.02, 870.03, 310.01; 379/106.03, 106.07, 108.01; 455/422, 426, 552, 554, 410; 375/200; 364/481

IV. LACK OF UNITY OF INVENTION:

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2, and 13.3 is not complied with for the following reasons:

As applicant was previously notified this International Preliminary Examining Authority has found plural inventions claimed in the International Application covered by the claims indicated below:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-9 are, drawn to an apparatus and method for sensing data, for converting the data, and for wirelessly transmitting the data in response to a remote command.

Group II, claim(s) 10-18 are, drawn to an apparatus and method for monitoring utility usage data with a means for determining utility usage by monitoring the reflected radiation from a rotating means.

Group III, claim(s) 19-30 are, drawn to a transmitting protocol for a data gathering system.

Group IV, claims 31-39 are, drawn to a method of collecting data and transmitting a short message in a control channel.

Group V, claims 40-48 are, drawn to a device and method for coupling telecommunication equipment with a digital personal communication system.

and it considers that the International Application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated below:

The inventions listed as Groups I-V do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I relates to a method and device for sensing data and wirelessly transmitting the data in response to a command request from a remote device. Such features are not recited in the other claims. Group II relates to a device and method of monitoring utility usage by means of a rotating means for reflecting radiation. Such features are not recited in the other claims. Group III related to a method of transmitting data by a particular protocol. Group IV relates to a method of collecting data, composing a message and transmission of the message using a personal communications system protocol. Group V relates to a method and device for coupling telecommunications equipment to a personal communications system. None of the other claims recite feature of such a device.

V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):

unlicensed frequency and a particular transmission means. These are considered obvious features because the use of a wireless transmission on an unlicensed frequency is within the knowledge of an ordinary practitioner in the technical art. The use of a particular transmitter also lacks an inventive step because it is recognized that a variety of transmitter would have been known to an ordinary practitioner and the selection of a particular transmitter for a certain purpose would have been within his technical skill.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/19406

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 11

Claims 19-30 lack an inventive step under PCT Article 33(3) as being obvious over Roach. Cols. 18-22 and the abstract of Roach teaches the use of a control channel for the transmission of meter data. The reference in general teaches the basis functions of a wireless cell phone system and the protocol used. Although the specific protocol of the system is not described, the system described in the instant application is presumed to be implemented on a conventional cell phone network. Thus, it would have been obvious to conform the messages to the proper protocol so that the messages are sendable on the control channel of the network and would conform to the specific portion of the channel that is available for transmission.

Claims 31-39 lack an inventive step under PCT Article 33(3) as being obvious over Roach.

Regarding claim 31, the claim recites a method of collecting data and using the short message portion of the control channel of a wireless communication system for the transmission of the data. Roach teaches in cols. 18-22 the use of the control channel although the short message portion is not disclosed it would have been obvious that any available portion of the control channel is usable for the sending of messages.

Regarding claim 32, the use of a date stamp is taught in Roach.

Regarding claims 33-39, these claims recite various means for the collection and transmission of the data. The use of a particular network and the means within the network is considered to be obvious since they are within the knowledge of one of ordinary skill in the art.

Claims 40-48 lack an inventive step under PCT Article 33(3) as being obvious over Blust. Blust teaches the use of a standard telephone system in addition to a wireless phone network for the transmission of data. This includes connection to and transmission by such a system. Although various aspects of claims 40-48 are not explicitly taught in Blust, the general concept of the connection of phone service between wire-line communication equipment and a digital PCS system are disclosed. The various difference between the claims and Blust are considered to be within the scope of knowledge of a practitioner with ordinary skill in the art and are thus considered to be obvious.

----- NEW CITATIONS -----

NONE